

S/048/62/026/008/322/C2E
B1C4/B1C2

AUTHORS: Firs'ev, Ye. P., Pivovarov, S. P., and Latyshev, G. D.

TITLE: Gradient meter based on a supergenerator controlled by
nuclear precession

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Seriya fizicheskaya,
v. 26, no. 8, 1962, 1068-1090

TEXT: An apparatus for determining deviations of magnetic field strength
within the range 10^{-3} - 10^{-6} from the theoretical value is described. The
apparatus (Fig. 1) works with a supergenerator (Fig. 2). The circuit of
one supergenerator is attached to the magnetic surface, that of the other
one is moved from point to point in the field. The difference of the
supergenerator frequencies characterizes the homogeneity of the field, and
is determined from the Lissajous figures on the oscilloscope. The
distance between the pickups is ~ 10 mm, the maximum inhomogeneity is
 $\leq 5 \cdot 10^{-3}$. There are 3 figures.

ASSOCIATION: Institut yadernoy fiziki Akademii nauk KazSSR (Institute of
Nuclear Physics of the Academy of Sciences KazSSR)

Card 1/1

L 23138-66 LPT(1) LJP(c)

ACC NR: AP6801587

SOURCE CODE: UR/0120/63/000/006/0171/0174

AUTHOR: Rudnev, I. M.; Gorobets, Yu. V.; Pivovarov, S. P.; Chernov, R. M.

ORG: Institute of Nuclear Physics, AN KazSSR (Institut yadrovoy fiziki AN KazSSR)

TITLE: Wide-range instrument for measuring intensities of nonuniform magnetic fields

SOURCE: Primary i tchislennye eksperimenta, no. 6, 1963, 171-174

TOPIC TAGS: magnetic field measurement, magnetometer

ABSTRACT: The development of a new wide-range (7-350 es) magnetometer is reported; an aperiodic circuit with DPPG (α, α -diphenyl β -picrylhydrogen) inductively or capacitatively coupled with the resonant circuit of a r-f oscillator is used as an EPR-signal sensor. The conventional scheme of EPR spectrometer is employed. The magnetometer permits measuring field intensity with an error of 0.001 at gradients up to 1000% per cm. The error for uniform fields may be reduced to $(2-5) \times 10^{-5}$. The entire range 7-350 es, or 20-3000 Mc, is covered without changing the sensor. The magnetometer consists of standard Soviet-made instruments and devices. Orig. art. has: 3 figures and 3 formulas.

SUB CODE: 7.09 / SUBM DATE: 05Oct64 / ORIG REF: 002 / OTN REF: 001

Card 1/1

PB

UDC: 631.317.443

ACC NR: AP6025712

SOURCE CODE: UR/0187/66/000/005/0007/0017

AUTHOR: Pivovarov, S. P.; Romanovich, I. A.

EDG: none

TITLE: TV equipment on the artificial Earth satellites intended for observation of clouds

SOURCE: Tekhnika Kino i Televizioniya, no. 5, 1966, 7-17

TOPIC TAGS: artificial satellite, meteorologic satellite, tv equipment

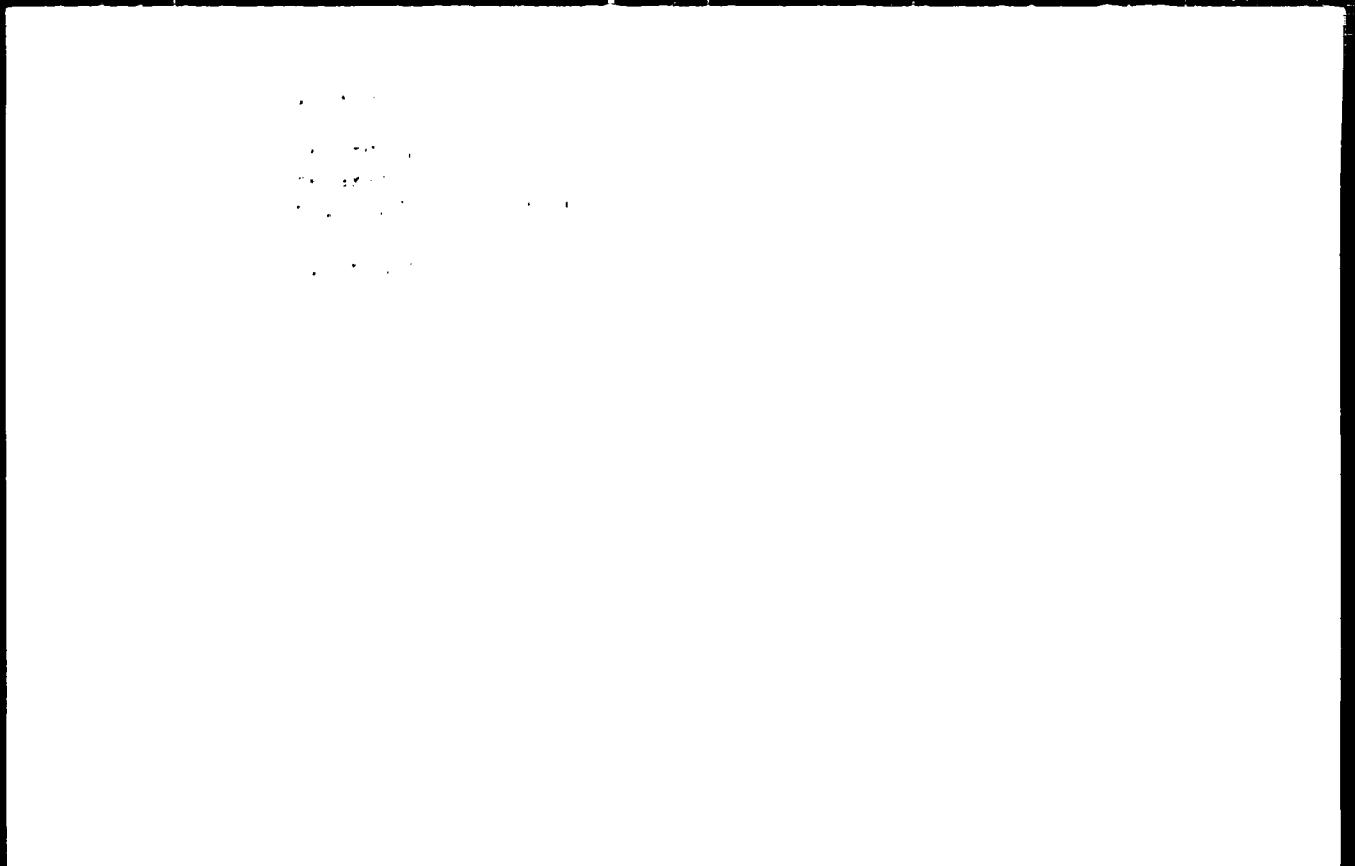
ABSTRACT: Based on nine 1960-64 American and three 1951-65 Soviet published sources, this review covers the following: The idea of cloud mapping from satellites (Tires, etc.); satellite-borne and land-based tv equipment for meteorological purposes; technical characteristics of such equipment; elements of satellite-borne equipment (camera tubes, information-storage devices). Only general information intended for orientation of nonspecialist readers is presented. Orig. art. has: 11 figures, 7 formulas, and 1 table.

SUB CODE: 22.17.34 / SUBM DATE: none / ORIG REF: 003 / OTH REF: 009

Card 1/1

UDC: 621.397:629.19

"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001341

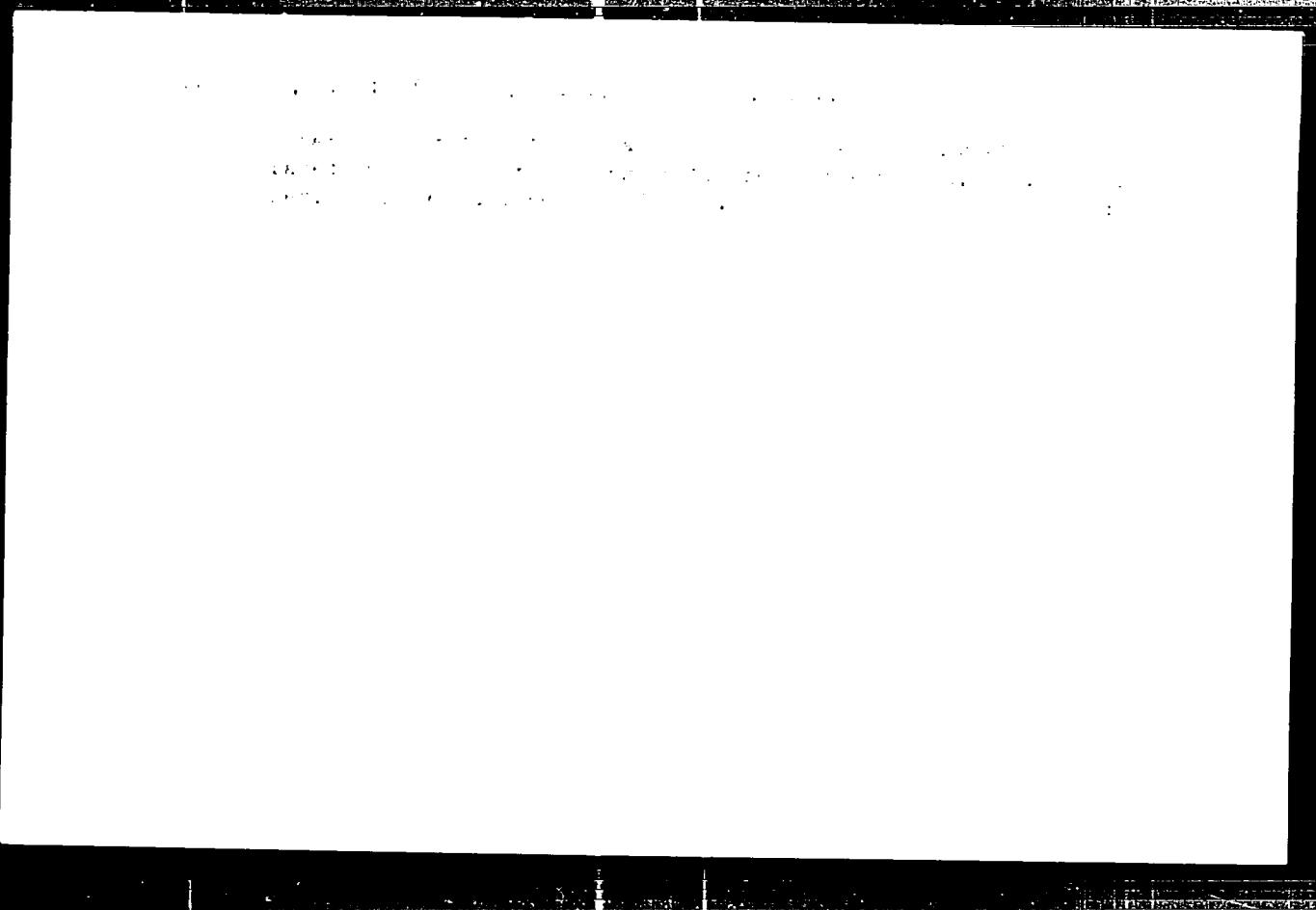


APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0013411

PAVLOV, O.V.; PIVOVAROV, S.P.; RUKHIN, A.B.; YAKOVLEV, G.I.

Letters to the editor. Usp. fiz. nauk 87 no.1:181-183 S '65.
(MIRA 18;9)

"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001341



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PIVOVAROV, S.P.; FIRSOV, Ye.P.; YANILK, O.N.; LATYSHEV, G.D.

Comparison of circuits for paramagnetic resonance detection.
Trudy Inst. iad. fiz. AN Kazakh. SSR 6:119-123 '63.
(MIRA 16:10)

FIREGOV, Y.A.F. FIVE YEARS, 1940-1945, 1946-1951.

Simple magnetometer based on the Hall effect
Trinity Inst., 1940-1945. AN-Kazakhstan, 1946-1951.

MIRA

170263 EPP(j)/EPT(c)/EWT(l)/EWI(m)/BDS/ES(w)-2 AFFTC/ASD/LJP(C)/
REF ID: A62444/PAB-1 EW/AM/JFW
ACCESSION NR: A63003705 8/0048/63/027/007/0953/0955

Author: PAYGOROV S.P. 17

Title: Measurement and stabilization of inhomogeneous magnetic fields with the aid of electron paramagnetic resonance /Report on the Thirteenth Annual Conference on Nuclear Spectroscopy held in Kiev from 25 January to 2 February 1962/

Source: AN SSSR, Izv. Seriya Fizicheskaya, v.27, no.7, 1963, 953-955

Topic Tags: magnetic field measurement, electron paramagnetic resonance

Abstract: The purpose of the work was to evaluate the possibilities of the method of electron paramagnetic resonance (EPR) for measuring and stabilizing inhomogeneous magnetic fields. Procedures for recording EPR of free radicals in fields from 2.8 to 320 Gauss were compared. The radicals tested were C₆H-diphenyl-β-picryl hydrazyl (DPPH), anthracite, and Na in liquid ammonia. Particular attention was given to determining the minimal linear dimensions of the specimen allowing of reliable recording of the EPR signal without recourse to special means and measures. Analysis indicates that absolute field measurements to better than 1 part in 5×10^3 in the case of DPPH and 1 part in 5×10^4 in the case of the other radicals are impossible without preliminary calibration of the working substance in a

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L 17872-63

ACCESSION NR: AP3003705

uniform field, using nuclear resonance. Suggestions are made regarding the best types indicating systems for fields in different ranges. It is concluded that EPR can be recommended for measurement and stabilization of magnetic fields in the range from 15 to 1000 Gauss with an inhomogeneity of 2-3% per cm or more.

Orig.art.has: 6 formulas.

ASSOCIATION: none

SUBMITTED: 00

DATE ACQ: 02Aug83

ENCL: 00

SUB CODE: SD, PH

NO REF SOV: 005

OTHER: 002

Card 2/2

L 19576-63 EPF(c)/EWP(j)/EWT(l)/EWT(m)/BDS/EEC(b)-2 AFFTC/ASD/
IJF(C) PC-4/Pr-4/P1-4 GG/RM/VW/MAY/JFW S/2707/63/006/000/0124/0128 X B
ACCESSION NR: AT3007856

AUTHOR: Firsov, Ye. P.; Pivovarov, S. P.; Latyshev, G. D.

TITLE: Simple magnetometer based on the principle of electron paramagnetic resonance

SOURCE: AN KazSSR. Institut yadernoy fiziki. Trudy, v. 6, 1963.
Issledovaniya po fizike vysokikh energiy i elementarnykh chasit, 124-128

TOPIC TAGS: electron paramagnetic resonance magnetometer, magnetometer, diphenylpicrylhydrazyl, sodium ammonia solution, electron paramagnetic resonance, electron paramagnetic resonance signal, magnetic field measurement, electron paramagnetic resonance crystal, free radical paramagnetic resonance, free radical crystal, precision field meter, magnetic field meter

ABSTRACT: An instrument based on the EPR of free radicals for making precise measurements of magnetic fields of 70—800 oe with an accuracy of 0.1% is described in detail, and its performance

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L 19576-63

ACCESSION NR: AT3007856

is investigated analytically. The device comprises a magnetic resonance pickup, a high-frequency generator, a modulator, a magnet, and an indicator. Diphenylpicrylhydrazyl crystals (line width of 2.7 oe) or a solution of sodium in ammonia (line width of 0.05 oe) are used as working substances. Analytical evaluations indicate that the output signal does not depend significantly on frequency within a wide frequency band. This makes the device particularly simple to operate. Orig. art. has: 4 figures, 10 formulas, and 1 table.

ASSOCIATION: none

SUBMITTED: 00

DATE ACQ: 08Aug63

ENCL: 00

SUB CODE: PH

NO REF Sov: 002

OTHER: 000

Cord 2/2

VASIL'YEV, D.V.; BESSEKERSKIY, V.A.; NEYMAN, L.R.; PIVOVAROV, S.P.;
P'OLONSKIY, V.I.; FATEYEV, A.V.

Professor Arkadii Timofeevich Blazhkin, 1904 - ; on his 60th
birthday and the 35th anniversary of his scientific and
educational work. Elektrичество no.4:94 Ap '64. (MIRA 17:4)

PIVOVAROV, S.P., traktorist

We accept the challenge of the machinery operators of the Frunze Collective Farm. Mekh. sil'.hosp. 11 no.8:10 Ag '60. (MIRA 13:9)

1. Artel' im.Kalinina, Solonyanskogo rayona, Dnepropetrovskoy oblasti.
(Farm mechanization)

PIVOVAROV, V. (g. Barnaul).

Tractorists in Altai Territory. Tekh.mol.23 no.3:15-16 Mr '55.
(Pedianina, Valentina) (MIRA 8:4)
(Altai Territory—Machine-tractor stations)

VASEV, V. N., IZHUMOV, V. G.

The ρ -meson mass difference. Izv. Akad. Nauk SSSR Ser. Matematika, No. 12, 1971.

Institut matematiki s Vyчислителем Тимирязевского ботанического сада АН СССР.

PIVOVAROV, V.G.

Contribution to Green's function of a photon on account of
strong interactions. Zhir. eksp. i teor. fiz. 44 no.6:2023-
2028 Je '63. (MIRA 16:6)

1. Institut matematiki s vychislitel'nym tsentrom Sibirskogo
otdeleniya AN SSSR.

(Potential, Theory of)
(Mesons--Scattering)

REF ID: A7167 / FCC (u) / BBS APPROV
ACCUMULATED: AF3003135

LSP(C) 8/0036/63/044/006/2023/2028 b
6
9
5

AUTHOR: Pivovarov, V. G.

TITLE: Contribution of strong interactions to the photon Green function

SOURCE: Journal chisl. i teor. fiziki, v. 44, no. 6, 1963, 2023-2028

TOPIC TERMS: strong interaction, photon Green function, cross section, radiative correction

ABSTRACT: The changes introduced into the photon Green function as a result of taking into account strong interactions between virtual pions, and the concomitant changes in the total (differential) cross section of the processes proceeding via the virtual photon, are evaluated. The two-particle approximation is used and the contributions of other intermediate states are neglected. It is found that the changes in the Green function can amount to several times ten per cent, which should be taken into account when the momentum transfer becomes appreciable. "The author is grateful to I. V. Ginzburg, N. R. Pivovarova, V. V. Serebryakov, and D. V. Shirkov for an evaluation and continuous interest in the work." Orig. art. has: 5 figures, 10 formulas, and 4 tables.

ASSOCIATION: Inst. of mathematics with Computing Center, Siberian Dept. AS USSR

Card 1/1

GLAZUNOV, A.I.; KAMOVNIKOV, B.P.; KRAVCHENKO, V.S.; PIVOVAROV, V.G.;
STEPANOV, I.A.

Automatic control f alcohol in distilled liquors. Spirit.prom.
27 no.2:28-32 '61. (MI:A 14:4)
(Alcohol) (Automatic control)

REVIEWS V. V. L., AND M. M. V. A. 1. 1.

Intensification of the effects of some organic surface-active substances. I. General discussion.

... Vol. 6, No. 1, p. 1-10, 1963.

PIVOVAROV, V. M.

Physics - Spectroscopy

Code : 1/1 Pub. 22 - 12/48

Authors : Borisovich, Ya. S. and Pivovarov, V. M.

Title : Regarding the problem of temperature changes in intensities of spectral lines of the combined dispersion and intermolecular reactions in a condensed phase.

Periodical : Dok. AN SSSR 97/5, 801 - 804, August 11, 1954

Abstract : Various theories of temperature dependence of spectral line intensities on the intermolecular reactions of substances in condensed phase, are described and criticized; (neither one gives a satisfactory explanation of observed phenomenon.) Six references (1933-1953). Tables; illustration; diagrams.

Institution : ...

Presented by : Academ. A. N. Terenin, April 3, 1954

Pivovarov, V.M.
USSR/Optics Microscopy.

K-

Abs Jour : Referat Zhur - Fizika. No 3, 1955. 855

Author : Bobovich, Ya.S., Pivovarov, V.M.
Title : Photoelectric Recording of Raman Spectra of Powdered
Substances.

Orig Pub : Zh. eksperim. i teor. fizika, 1955, 29, No 5, 690-691.

Abstract : Using naphthalene and n-nitrotoluol as examples. It is shown that it is possible and that it is advantageous to record photoelectrically the Raman spectra of powdered substances. A high intensity photoelectric installation was used for the investigation, along with another source of excitation -- a powerful spiral mercury tube of low pressure. Thanks to the very weak solid background of the tube, there is no need for introducing a filter into the primary beam of light to reduce the background. Placed in the secondary beam of light, to attenuate the bright excitation line $\nu = 4358\text{\AA}$,

- 81 -

Card 1/2

Category : USSR/Optics - Optical Methods of Analysis. Instruments

K-7

Abs Jour Ref Zhur - Fizika, N. 2, 1957, No 5223

Author Filovvarc, V.M., Botovich, Ya.S
Title Photo-Electronic Recording of Raman Spectra of Gases

Orig Pub Zh tekhn fizika, 1956, 2t No 3, 649-651

Abstract Description of a gas cell with a four-mirror system and a helical mercury lamp of low pressure. The photo-electronic spectrometer was described earlier (Referat Zh Fizika, 1955, 20421). With this apparatus it was possible to record photo-electronically the Raman spectra of CO₂ and N₂ at a pressure of 10 -- 13 atmos. The reproducibility is illustrated by three records of the CO₂ spectrum and the 1100 -- 1500 cm⁻¹ region at an inlet slit width of 25 cm⁻¹. Quantitative measurements can be carried out

Card 1/1

AUTHOR: BOBOVIC, JA.S., PIVOVAROV, V.M.
TITLE: The Apparatus and the Methods for the Investigation of
the Spectra of Combination Scattering in Gases.
PERIODICAL: Uspekhi Fizicheskikh Nauk, 1956, Vol 60, Nr 4, pp 689 - 708
Received: 1 / 1957

PA - 2041

Reviewed: 3 / 1957

ABSTRACT: In experimental respect the spectroscopy of combination scattering in gases can be successfully constructed with infrared absorption spectra. For the determination of pure rotation spectra experimental technical methods are by far more simple than on the occasion of the investigation of the distant infrared domain. In comparison to the study of liquid and even of solid bodies, recording of the spectra of combination scattering in gases and vapors must be described as a difficult experimental problem mainly because of the exceedingly low intensity of radiation. The peculiarities connected with working with gases are connected with the light source for the excitation of the spectrum and with the cuvette which contains the gaseous substance to be investigated. It is therefore necessary that, above all, these two elements of the apparatus be investigated.

Light sources: The lamps with mercury high pressure arcs are either little suited or even unsuited for the excitation

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PA - 2041

The Apparatus and the Methods for the Investigation of
the Spectra of Combination Scattering in Gases.

of spectra in gases, mainly because of the strong continuous background in the frequency range of the lines of combination scattering. The most suitable light source for working with gases is the low-pressure mercury lamp. A very weak background and the narrow lines are among the principle advantages offered by these lamps. In low pressure lamps two characteristic forms of gas discharge are known to occur: the glow discharge and the arc discharge. Glow lamps are fed by an alternating voltage of from 0,5 to 10 kV, the lamps for the arc discharge are fed with parallel voltage and also with alternating voltage of 110 - 220 V. When working with lamps for glow discharge resonance line $\lambda = 2537 \text{ \AA}$ is usually chosen for excitation. However, this possibility of excitation is by no means universal. When working with lamps for arc discharge the line $\lambda = 4358 \text{ \AA}$ is usually chosen. Here only several types of lamps are described.

Card 2/3

PA - 2041

The Apparatus and the Methods for the Investigation of
the Spectra of Combination Scattering in Gases.

Gas cuvettes: Above all, the incidence of the light coming from the walls of the cuvette into the special apparatus must be prevented. Various constructions of gas cuvettes which render the elimination of this parasitical light possible are shown by drawings. Also the reliable hermetical closing device for the cuvettes is of great importance. The cuvettes are mostly made from quartz- or pyrex tubes and in rare cases from glass tubes.

Spectral devices and some applications of the method: Here two typical devices of this kind are described: The two-prism spectrograph made of glass and a device with an even higher resolving capacity constructed on the basis of a 21-foot lattice. In conclusion the possibilities offered by such an apparatus are discussed.

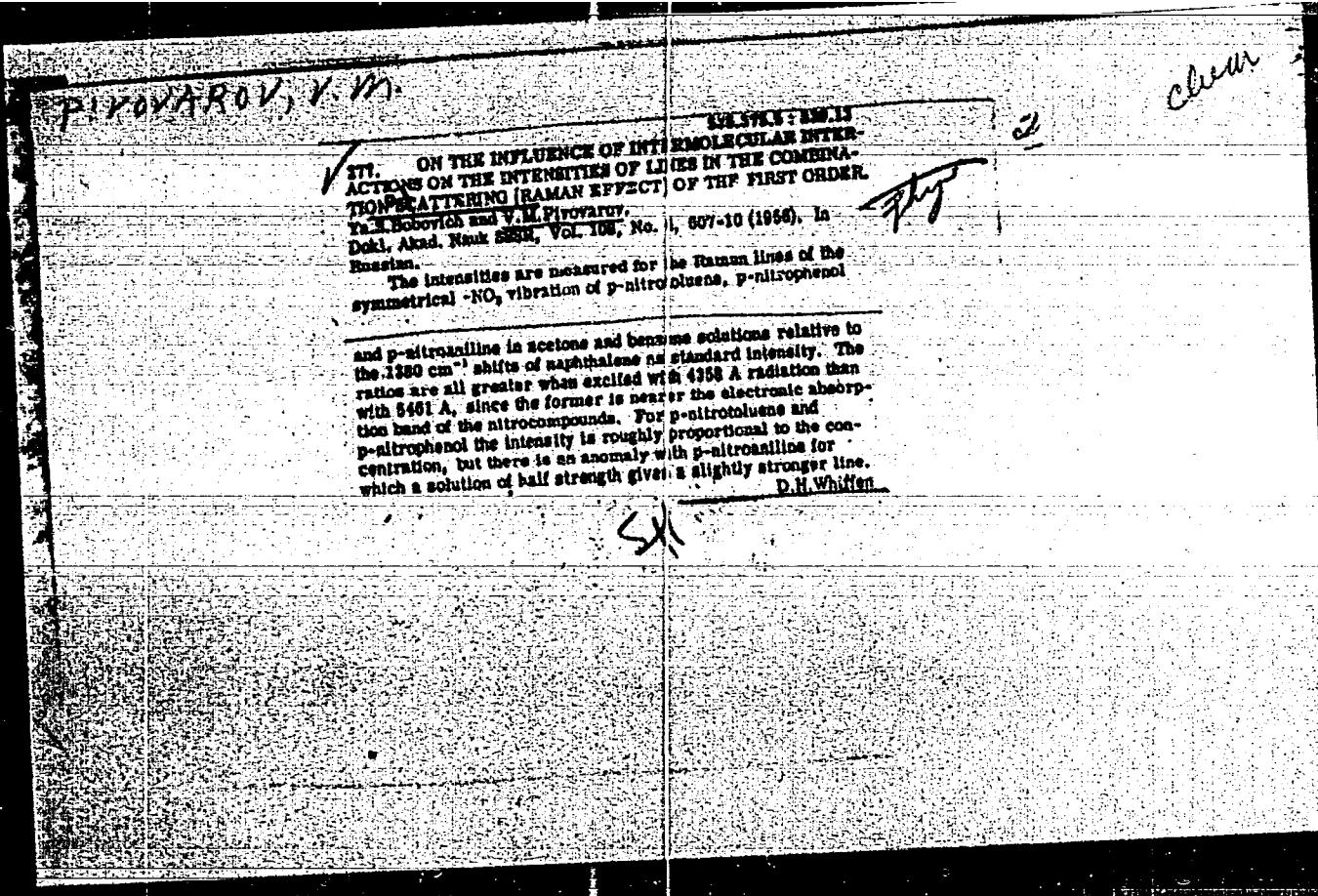
ASSOCIATION: Institute for Chemical Physics of the Academy of Science
in the USSR.

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AVAILABLE: Library of Congress

Card 3/3



PRIM'KOV AF

20(7) PHASE I BOOK EXPLOITATION Sov/1365

L'vov, Universitet

Materialy i Vsesoyuznogo soveshchaniya po spektroskopii. t. 1:
Molekulyarnaya spektroskopiya (Papers of the 10th All-Union
Conference on Spectroscopy, Vol. 1: Molecular Spectroscopy)
(L'vov) Izd-vo L'vovskogo univ-ta, 1957. 499 p. 4,000 copies
printed. (Series: Itse: Fizichnyy sbirnyk, vyp. 1/8/)

Additional Sponsoring Agency: Akademiya nauk SSSR. Komissiya po
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Candidate of Physical and Mathematical Sciences, Klimovskij, L.K.,
Candidate of Physical and Mathematical Sciences, Miliyanchuk, V.S.,
Candidate of Physical and Mathematical Sciences, and Glauberman,
A.Ye., Candidate of Physical and Mathematical Sciences.

Card 1/30

Pominov, I.S. Study of Ion Solvation in Alcohol-aqueous Solutions by Means of Absorption Spectra	213
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PIVOVAROV, V. M.

51-2-5/15

AUTHORS: Pivovarov, V.M. and Bobovich, Ya.S.
TITLE: Intensity of the Raman scattering lines in binary liquid mixtures and the intermolecular interaction. (Intensivnost' liniy kombinatsionnogo rasseyaniya v binarnykh zhidkikh smesyah i mezhmolekularnoye vzaimodeystviye.)
PERIODICAL: "Optika i Spektroskopiya" (Optics and Spectroscopy) 1957, Vol.3, No.2, pp.134-142 (U.S.S.R.)
ABSTRACT: Quantitative chemical analysis of liquid mixtures using Raman spectra is based on the assumption that line intensity of a compound is directly proportional to its concentration in the mixture. First to notice a departure from proportionality were Dadieu and Kohlrausch (Ref.1). Such departures were reported both for polar liquids with tendencies towards association and recently for non-polar liquids (Ref.2-17). The authors review briefly but critically the earlier work. The following binary mixtures were studied:- (i) acetone and carbon tetrachloride, (ii) acetone and chloroform, (iii) acetone and benzene, (iv) benzene and chloroform and (v) alcohol and benzene. The mixtures were prepared at 10% intervals by volume. The spectra were excited using a low-pressure mercury lamp whose working current of 16 A was held constant to within ± 0.2 A. This corresponds to a 1% error in the intensity. The spectra were measured photoelectrically and were repeatable to within $\pm 1.5\%$ (root-mean-square error). Integral

Card 1/3

51-2-5/15

Intensity of the Raman scattering lines in binary liquid mixtures and the intermolecular interaction. (Cont.)
intensities were measured using 25 cm^{-1} wide slit (line widths lie between 5 and 12 cm^{-1}). A possible source of systematic errors is the refractive index of liquids. The reflection at the liquid-glass boundary due to difference between the refractive indices of glass (of the container) and the liquid may cause errors of the order of 10-15%. Other errors, related to the refractive index and due to its effect on the optical geometry of the apparatus employed, may also affect the results. To estimate these systematic errors the authors calibrated their apparatus with liquid mixtures (carbon tetrachloride and hexane, benzene and hexane) whose components interact very feebly, or not at all, but have very different refractive indices. Under these conditions the refractive-index-induced errors should be greatest. It was found that in the apparatus employed by authors these errors amounted to only 2-3%. The results for the five mixtures studied are given in Figs. 2-6 as percent departures from linearity plotted against concentration. These relationships are given for several wavelengths (from 200 to 3000 cm^{-1}) characteristic of each component. The greatest departures are found for the depolarized lines, while the polarized line intensities (with exception of the C=O bond

Card 2/3

01-00-14

AUTHORS: Bobovich, Ya. S. and Filovnitsky, V. M.

TITLE: On the Role of Excited Electronic States in Concentration and Temperature Anomalies of Intensities of Raman Scattering Lines. (O roli vzbuzhdeniyakh elektronnykh sostoyaniy v kontsentratsionnykh i temperaturnykh anomaliyah intensivnosti ramanovskikh svetotsvetov sveta.)

PERIODICAL: Optika i Spektroskopiya, 1981, Vol. 51, No. 3, pp. 67-68. (USSR)

ABSTRACT: Temperature dependence of intensity in Raman scattering spectra of the first order is found to be anomalous (Reis. 1-14, 34). Instead of the theoretically predicted increase of intensity with temperature, a fall of intensity is observed. A similar effect in the concentration behaviour of intensities of Raman spectra of liquids and their mixtures was observed by Bobovich and Tulut (Reis. 1). Comparison of the concentration and temperature anomalies led to an attempt of discussion of both these effects from an inter-molecular interaction point of view (Reis. 1). Card 1/3 This work deals with verification of the above interpre-

On the Role of Excited Electron States in Concentration and
Temperature Anomalies of Intensities of Raman Scattering Lines.

51-115/14

- ation and relationship of the observed effects with electron-vibrational spectra. The concentration and temperature behaviours of intensities are compared for the cases close to and outside the resonance region for fully symmetrical vibration lines of the nitro group in nitrobenzene, paranitrotoluene, nitrophenol, nitrophenetole and nitroaniline. The spectra were excited with green and blue mercury lines. Acetone and benzene were used as solvents. In the concentration experiments intensities were measured for two concentrations: one close to saturation and the other one-half of the first. Measurements were made relative to an internal standard, which was the 1380 cm^{-1} line of naphthalene which was added to solutions. The temperature experiments were carried out at two temperatures of 20 and 80/90°C. It was found that the concentration anomalies can, but the temperature anomalies cannot, be described by parameters which give the form and position of potential curves of

Card 2/3

FILIPPOV, G.K.; PIVOVAROV, V.M.

Emission from a DPK-4 tube in the far-infrared region. Opt. i
spektr. No. 3-522-525 Mr. 164.
(MIRA 1714)

AUTHORS: Bobovich, Ya. S. and Pivovarov, V. M.

TITLE: On the Problem of Splitting of the Fully-symmetric
Vibration Band of the Nitro-group in n-Nitroaniline
Molecules. (K voprosu o rasshcheplenii polosy
polnosimmetricheskogo kolebaniya nitrogruppy v molekulakh
n-nitroanilina.)

PERIODICAL: Optika i Spektroskopiya, 1957, Vol. II, Nr. 4.
pp. 387-399. (USSR)

ABSTRACT: In the study of concentration dependence of intensities
in the Raman spectra of aromatic nitro-compounds the
authors have found that the NO₂ band of the fully-
symmetric vibration of the nitro-group in molecules of
n-nitroaniline behaved peculiarly. In the spectrum of
the saturated solution of n-nitroaniline in dioxane
(concentration about 1.5 mole/litre) this band consists
of two components with frequencies 1340 and 1323 cm⁻¹,
and the latter of these has a strong diffusion shading
on the side of lower frequencies and it is stronger than
the former. On dilution of the solution by a factor of

Card 1/4

On the Problem of Splitting of the Fully-symmetric Vibration Band of
the Nitro-group in n-Nitroaniline Molecules.

have a doublet structure with 12-42 cm⁻¹ separation between the components. Additional evidence confirming the external hydrogen bond hypothesis for splitting of the NO₂ band is the temperature dependence of the saturated solution of n-nitroaniline. It was found that heating of this solution to 90°C weakens considerably the low-frequency component, and this may be ascribed to destruction of the hydrogen bridges. Experiments on solutions of n-nitroaniline in acetone, including dilution of the acetone solutions by carbon tetrachloride and benzene, and on solutions of n-nitroaniline in ethyl alcohol, led to a conclusion that splitting of the NO₂ band into two components occurs not only due to interaction with the solvent but also due to interaction between the molecules of n-nitroaniline itself. It seems that the hydrogen bridge between the carbonyl and amine groups of the acetone and n-nitroaniline molecules has a similar effect on the nitro-group as direct

Card 7/4

AUTHORS: Pivovarov, V.I. and Kislovskiy, L.D.

TITLE: On the Anomalous Behaviour of the Raman Line Intensities in Two-Component Mixtures (K voprosu ob anomal'nom khode intensivnosti liniy kontinatsionnogo rasseyaniya dvukomponentnykh smess).

PERIODICAL: Optika i Spektroskopiya, 1958, Vol 5, Nr 3, p: 251-255 (USSR)

ABSTRACT: Bobrovich and Tulub (Ref 1) and Pivovarov and Bobrovich (Ref 2) found that in certain two-component mixtures the Raman line intensities of one component are not proportional to the concentration of that component. Fig 1, which is based on the data of Ref 2, shows the dependence of the Raman intensity on concentration for three mixtures: $C_2H_5OH-C_6H_6$, $(CH_3)_2CO-C_6H_6$ and $CHCl_3-C_6H_6$. The present authors studied the changes of the Raman line intensities in two-component mixtures and compared them with the changes in the positions and intensities of absorption bands which are non-active in the Raman scattering. All of these changes were studied as a function of the concentration of each of the components. The substance used was benzene: it was dissolved in acetone, ethyl alcohol or in chloroform. The concentration range is

Card 1,3

On the Anomalous Behaviour of the Kaban Line Intensities in Particular
on the 2600 Å Band

of the integral intensity of the non-active 2600 Å absorption band of benzene was investigated. Solutions of benzene with 0, 50, 75 and 100% by volume of benzene were used. It was found that the 2600 Å band intensity is proportional to the concentration of benzene in acetone and in ethyl alcohol (Fig 2). When benzene is dissolved in chloroform an anomalous increase of the 2600 Å band intensity is observed with decrease of the concentration of benzene. The latter result agrees with that reported by Bayliss and Hulse (Ref. 7). The concentration dependence of the 2600 Å absorption band in acetone may be qualitatively explained by means of the "damped oscillator" model proposed earlier by one of the present authors (his論文 Refs 8, 9). The discussion of the "damped oscillator" model is illustrated by Figs 3 and 4 which show the effect of the refractive index on the position and intensity of an absorption band and the change in the position and intensity of a weak absorption band which lies in the wing of a strong band. Application of this model to the active absorption bands made it possible to explain their anomalies in

part 1. 3

On the Anomalous Behaviour of the Raman Line Intensities in Two-Color Light Mixtures

to show why the anomalies in the concentration dependence of the Raman line intensities should occur. The discussion given in the present paper is of preliminary and phenomenological nature, and it does not deal with the molecular mechanism of the observed effects. The authors thank B.S. Neporut and Ya.J. Bobovich for their criticism and advice. There are 4 figures and 10 references, 9 of which are Soviet.

ASSOCIATION: Gosudarstvennyj opticheskiy institut im. S.I. Vavilova (State Optical Institute imeni S.I. Vavilova)

SUBMITTED: October 21, 1957

Card 3 of 3 1. Benzene--Spectrographic analysis 2. Benzene optical properties 3. Raman spectrum--Applications

AUTHOR: Pivovarov, V.M.

SOV/SL-c-1-15 A

TITLE: On the Effect of the Internal Field on the Raman Scattering Intensity
(Vliyaniye vnutrennego polya na intensivnost' kombinatsionnogo
rasseyaniya)

PERIODICAL: Optika i Spektroskopiya, 1959, Vol 6, Nr 1, pp 101-103 (USSR)

ABSTRACT: Pivovarov and Kiselevskiy (Ref 1) have proposed an explanation for the anomalous concentration dependence of the Raman line intensities of compounds in binary mixtures. This explanation is based on the relationship of the position and intensity of the absorption band effective in Raman scattering with the value of the refractive index in that band. The present note points out that the change in the refractive index of a medium induces a change in the intensity of the field of a Raman wave at a tiny or a molecule placed in that medium. This change is determined by the refractive index in the region of wavelength of the scattered radiation. It affects the internal field acting on a molecule in the medium. The author considers this internal field and shows that the Raman line intensities should increase with increase of the refractive index of the medium and that intensity of the depolarized lines should be affected more than the intensity of the

Card 1/2

On the Effect of the Internal Field on the Raman Scattering Intensity SOV/31-6-1-18, 30

calculated values. The calculated values are in qualitative agreement with experiment. They are confirmed by the author's study of the effect of the medium on the intensity of the 1007 cm⁻¹ Raman line in pure acetone and in acetone-n-hexane mixtures with CCl₄ and benzene. The refractive indices of acetone and n-hexane are approximately equal at the wavelength of 1007. The observed anomalies in the concentration dependence of the 1007 cm line intensity in acetone-hexane mixtures were found to lie within the experimental error and were 5-10 times smaller than in acetone-CCl₄ mixtures. This author thanks Ya.S. Bobovich and B.S. Neporat for their advice. There are 7 references, 6 of which are Soviet and 2 English.

SUBMITTED: June 7, 1981

Card 2/2

AUTHORS: Pivovarov, V.L. and Dobrovich, Yu.S. OV/01-1-2-a, 7.

TITLE: On the Temperature Dependence of Raman Line Intensities in Gaseous CO₂ and N₂ (O temperaturnom khode intensivnosti liniy kombinatsionno-mossoyaniya sotsobraznykh CO₂ i N₂)

PERIODICAL: Optika i Spektroskopiya, 1989, Vol 6, Nr 2, pp 249-250 (USSR)

ABSTRACT. Dobrovich's experiments on Raman scattering in liquids showed (Ref 1) that the Raman line intensities decrease with increase of temperature contradicting the theory of Raman scattering. In order to find whether this anomalous behaviour is due to interactions between molecules in the condensed (liquid) phase, the authors studied the effect of temperature on the Raman line intensities in gases. In gases the intermolecular interactions are practically absent and the Raman scattering intensities should increase with temperature. The authors studied carbon dioxide and nitrogen lines at 1289, 1338 and 2330 cm⁻¹. They used the technique and apparatus described earlier by themselves (Ref 2) and by Kiselev (Ref 3). The gases were heated by means of an electrical spiral wound directly on the cell used for measurements. The intensities of the three lines listed above were measured at 40-50 and at 110-120°. The gas pressures were 4.3 and 1.5 atm at the two temperature ranges

On the Temperature Dependence of Raman Line Intensities in various CO₂ and N₂ 100-2-21
respectively. The results, which are mean of 5-9 measurements, are given in a table on p 23. Within the experimental error which was about 2-7%, no noticeable change in the intensities of the lines studied was observed. This probably confirms that there is no temperature anomaly in the behaviour of the Raman line intensities in gases, since only a negligibly small increase of intensity could be expected on increase of temperature from -6-50 to 110-120°C. Consequently the results obtained do not contradict the hypothesis that the temperature anomalies of the Raman line intensities in liquids are due to intermolecular interactions. There are 1 table and 3 Soviet references.

SUBMITTED: July 16, 1956

Page 2/2

24(7)

AUTHORS: Pivovarov, V.M. and Ordynseva, N.D.

SOV/51-6-5-10/34

TITLE: Effect of the Concentration and the Type of the Solvent on the Raman Line Intensity of the Fully-Symmetric Vibration of the Nitro-Group and on the Electronic Absorption Spectra of Aromatic Nitro-Compounds
(Vliyanie kontsentratsii i tipa rastvoritelya na intensivnost' liniy kombinatsionnogo rasseyaniya polnosimmetrichnogo kolebaniya nitrogruppy i na elektronnyye spektry pogloscheniya aromaticeskikh nitrosoyedineniy)

PERIODICAL: Optika i Spektroskopiya, 1959, Vol 6, Nr 5, pp 620-624 (USSR)

ABSTRACT: The authors report investigations of the effect of the concentration and the type of solvent on the intensity of the Raman line due to fully-symmetric vibration of NO₂ (1340 cm⁻¹) and on the nature of the absorption spectra of the following aromatic nitro-compounds: n-nitroaniline, n-nitrophenol, n-nitrophenetole and n-nitrotoluene. The Raman spectra were excited with light of 4358 and 5461 Å wavelengths and the spectra were recorded by means of a photoelectric instrument described earlier (Refs 3, 5). The 1380 cm⁻¹ naphthalene line (a small amount of naphthalene was added to each solution) was used as an internal standard in order to allow for the absorption of solutions in the region of the 1340 cm⁻¹ line. The results on the Raman spectra are collected

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NOV/51-n-5-10/34
**Effect of the Concentration and the Type of the Solvent on the Raman Line Intensity
of the Fully-Symmetric Vibration of the Nitro-Group and on the Electron Absorption
Spectra of Aromatic Nitro-Compounds**

in Table 1, in which col 4 lists the ratios of the intensity of the 1340 cm^{-1} line to the intensity of the 1510 cm^{-1} line at 130°C cm^{-1} , reduced to the same concentrations of the nitro compounds and naphthalene. The absorption spectra in the region 30-400 μm were obtained using a spectrophotometer SF-4. The thickness of the absorbing layer was 4-5 μ . The results of measurements are collected in Table 2 where the frequency at the absorption maximum is a mean of several measurements. The oscillator strength f was determined from

$$f = 1.23 \times 10^7 \int \epsilon \text{d}\nu$$

where ϵ is the extinction coefficient. The values of f are given in col 4 of Table 2. Fig 1 shows the extinction coefficient ϵ as a function of wavelength. Curves 1 to 4 represent the results obtained on the four nitro-compounds listed above dissolved in acetone, in hexane + acetone and in hexane. The solution concentrations were from 0.003 to 0.30 mole/litre. In order to see the effects of the type of solvent and the solution concentration more clearly some of the curves of Fig 1 are re-plotted in Fig 2 with the maxima reduced to the same height and displaced to the same position. Fig 3 shows the absorption spectra of

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50V/51-S-5-10/34
Effect of the Concentration and the Type of the Solvent on the Raman Line Intensity
of the Fully-Symmetric Vibrator of the Nitro-Group and the Electronic Alteration
Spectra of Aromatic Nitro-Compounds

n-nitroaniline dissolved in acetone (curve 1), in CH_2Cl_2 (curve 2), in hexane (curve 3), and in benzene (curve 4). The results shown in Figs. 1-3 and Table I can be summarized as follows: (1) In the Raman spectrum the intensity increases in a series of the solution concentration. (2) When acetone was replaced by a mixture of acetone and CCl_4 or by pure CCl_4 , the Raman intensity generally decreased. The only exception to this rule was n-nitroaniline excited with 5461 Å. (3) The absorption bands which are active in the Raman scattering NO_2 -line region were found to be displaced towards shorter wavelengths when a polar solvent was replaced by a nonpolar one (Figs. 1, 2). Simultaneously with the absorption band displacement, certain changes in their form were also observed, as shown in Fig. 2. (4) The effect of the solution concentration was small and did not exceed the experimental error of 10-15%. From these results the following conclusions were drawn: (i) the changes in the Raman line intensity with the type of solvent are due to the changes in the electronic transition frequency of the appropriate absorption band (this conclusion is in agreement with that made by J. D. Roberts et al., Ref. 7); (ii) dependence of the Raman intensities on the solution concentration

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Effect of the Concentration and the Type of the Solvent on the Raman Line Intensity
of the Fully-Symmetric Vibration of the Nitro-Group and on the Electronic Absorption
Spectra of Aromatic Nitro-Compounds SOV/51-6-5-10/34

cannot be related to the absorption spectrum since the positions and intensities of the absorption bands were found to be practically independent of the concentration. Acknowledgment is made to Ya.S. Bobovich for his advice. There are 3 figures, 2 tables and 8 references, 7 of which are Soviet and 1 German.

SUBMITTED: July 7, 1958

Card 4/4

8/0051/84/016/003/0523/0525

ACCESSION NR: AP4020968

AUTHOR: Filippov, O.K.; Pivovarov, V.M.

TITLE: Radiation of the PRK-4 mercury discharge tube in the far infrared

SOURCE: Optika i spektroskopiya, v.16, no.3, 1984, 523-525

TOPIC TAGS: PRK-4 discharge tube, mercury vapor discharge tube, mercury plasma radiation, electron density, infrared source, spectroscopy source

ABSTRACT: Knowledge of the characteristics of different light sources for spectroscopy is important in many investigations. In the present work there was studied the spectral distribution in brightness of the PRK-4 mercury-vapor discharge tube in the far infrared, namely in the interval from 33 to 75 cm⁻¹. The measurements were performed with the aid of a spectrometer with small echelle gratings (replicas with d = 0.5 and d = 0.85). The radiation detector was an optico-acoustic QAP-2 detector with a quartz window. The main results are shown in the figure (Enclosure 01). Another figure in the text gives the variation in intensity with discharge current. Evaluation of the electron density in the plasma yielded 10¹⁶ cm⁻¹. It is concluded that for the frequency region below 70 cm⁻¹ the optimum discharge current

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ACCESSION NR: AJ4020968

is 3-4 amp. "In conclusion, the authors express their gratitude to N.G.Yaroslavskaya and S.I.Sevikova for their interest and assistance in the work." Orig.art. has: 4 formulas, 2 figures and 1 table.

ASSOCIATION: none

SUBMITTED: 29Apr63

DATE ACQ: 02Apr64

ENCL: 01

SUB CODE: PW, SD

NR REF Sov: 002

OTHER: 009

2/4
Card

L 15987-66 EPP(n)-2/EWT(1)/ETC(f)/EWG(m) IJP(c) AT
ACC NR: AP6005474 SOURCE CODE: UR/0368/66/004/001/0064/0065

AUTHOR: Filippov, O. K.; Pivovarov, V. M.

ORG: none

TITLE: Use of long-wave spectral analysis for determining electrical conductivity
in the positive column of an arc discharge

SOURCE: Zhurnal prikladnoy spektroskopii, v. 4, no. 1, 1966, 64-65

TOPIC TAGS: arc discharge, discharge plasma, electric conductivity, far IR, plasma
physics

ABSTRACT: The authors propose a method for determining the electrical conductivity
of a high pressure arc discharge by studying the discharge plasma in the far infra-
red region of the spectrum. An expression is derived for determining the electrical
resistance of the plasma in terms of brightness, electron density and discharge tem-
perature. The formula is applicable only in the transparent region of the plasma.
A curve is given showing the electrical resistance of the plasma as a function of
collision frequency. The electrical conductivity of the plasma in the mercury arc

UDC: 535.35

Card 1/2

L 15987-66

ACC NR: AP6005474

2

of a high pressure PRK-4 lamp is calculated from the energy brightness of radiation measured in the far infrared region of the spectrum. The results are compared with the data of other authors. In conclusion we thank I. V. Podmoshenskiy and N. G. Yaroslavskiy for assistance with the work. Orig. art. has: 1 figure, 4 formulas.

SUB CODE: 20/ SUBN DATE: 15Feb65/ ORIG REF: 001/ OTH REF: 004

Card 2/2 90

L 9195-66 ENT(1)/EF(a)-2/ETC/ENG(a) IJP(e) AT

REC NR. AN6000114

SOURCE CODE: US/00513/63/000/008/0032/0032

SOURCE: Ref. zh. Pisika, Abs. SSSR^{44,55}

AUTHORS: Pilipov, O. K.; Pivovarov, V. N.

COD: none

TITLE: Radiation from the plasma of a PRK-4 lamp in the long-wave IR region

CITED SOURCE: Tr. Komis. po spektroskopii. AN SSSR. M., t. 2, vyp. 1, 1964, 360-367

TOPIC TAGS: IR spectroscopy, plasma arc, mercury vapor lamp, plasma radiation,
plasma density, bremsstrahlung

TRANSLATION: The authors measured the energy brightness of the plasma of a high-pressure mercury lamp^{PRK-4} in the 33--77 cm⁻¹ region. The radiation of the plasma was separated from that of the wall by means of special energy calibration. The value of the effective plasma temperature was found to be 6000K. In the frequency region 33--65 cm⁻¹, the plasma radiation is well described by the Rayleigh-Jeans curve, whereas in the 65--77 cm⁻¹ region a noticeable discrepancy is observed between the plasma and black-body radiation. The electron density of the plasma is calculated and it is shown that its radiation is of bremsstrahlung origin.

SUB CODE: 80

Card 1/1 ad

72
13

SOV/51-7-4-21 54

1969. Vana. Kir'yanova, L. I., Bobovich, Ya. S. and Tarchov, G. V.

TITLE: Photoelectric recording of Raman Spectra Excited with the
 $\lambda = 5875 \text{ \AA}$ Line from a Helium Lamp (Fotoelektricheskaya registratsiya
spektrov kombinatsionnogo rasseyaniya, voruzhdennykh linii
 $\lambda = 5875 \text{ \AA}$ zeliyeyoy lampy)

PUBLICATION: Optika i spektroskopiya, 1969, Vol 7, Nr 2, pp 258-259 (USSR)

INSTRUMENT: A 300C V, C.2 A cold-cathode spiral helium lamp working under glow-discharge conditions at $P_{He} = 2 \text{ mm Hg}$, was employed to excite the Raman spectrum (the 5875 Å line was used). The spectra were obtained by means of a high-speed monochromator with a diffraction grating. A photomultiplier PMU-27 was used as a receiver. This photomultiplier was sensitive to about 7000 Å and was, therefore, able to record vibrational lines with frequencies $\sim 1600 \text{ cm}^{-1}$. The signal from the photomultiplier was amplified and recorded using appropriate parts of a spectrometer DFS-12. Fig 1 shows the spectrum of iodoxybenzene outlined in this way. The reproducibility of the results and the

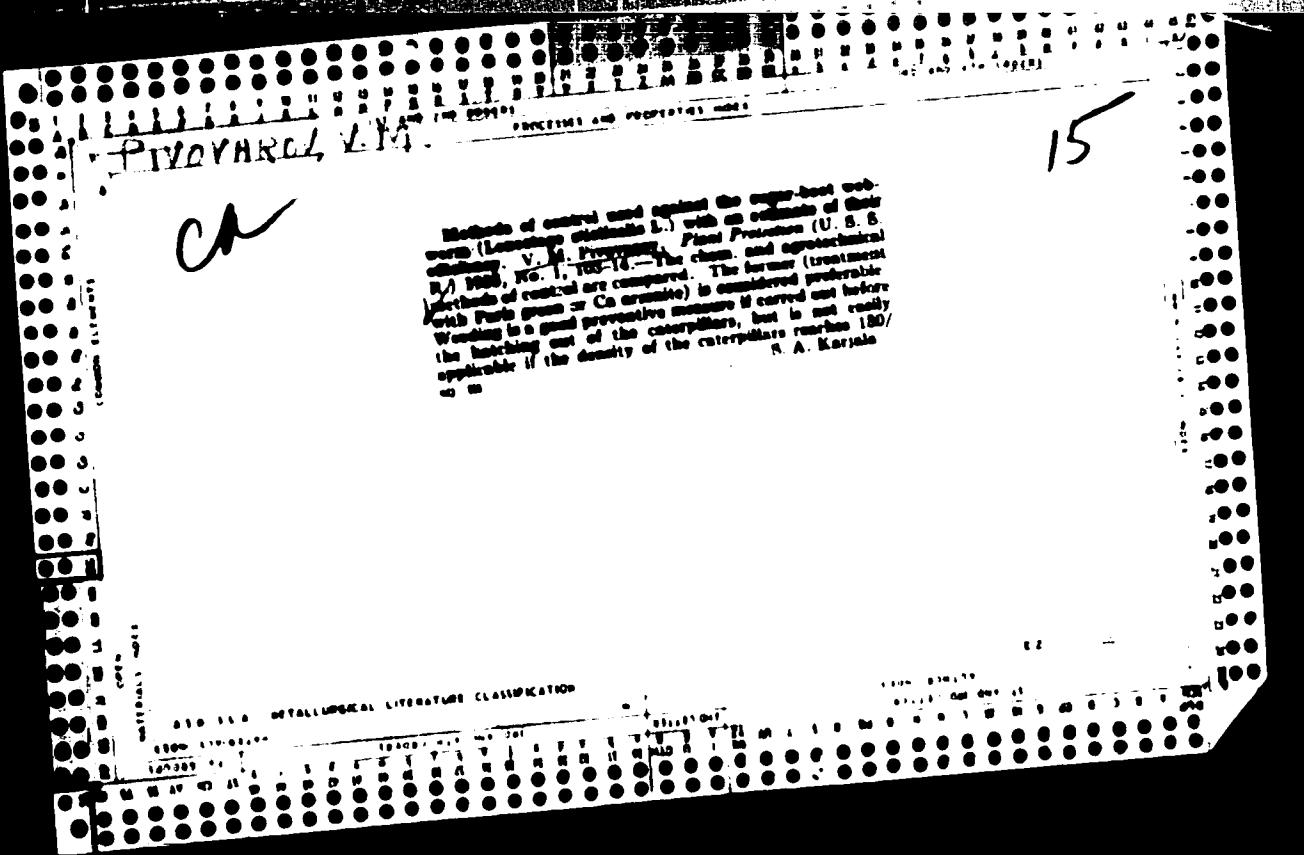
and 1/1

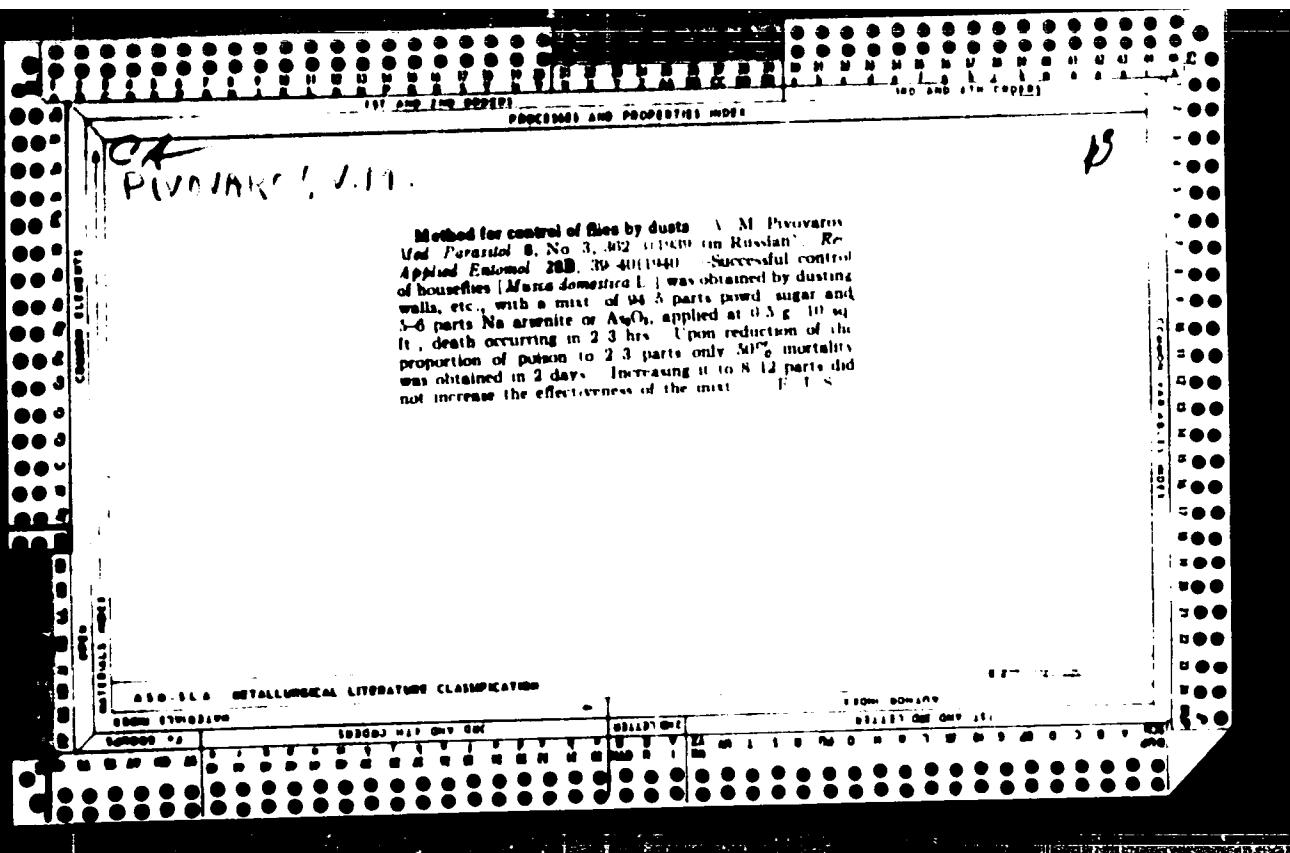
Photoelectric Recording of Raman spectra Excited with the = 5875 Å Line from a
Helium Lamp SOV/51-7-2-21 74

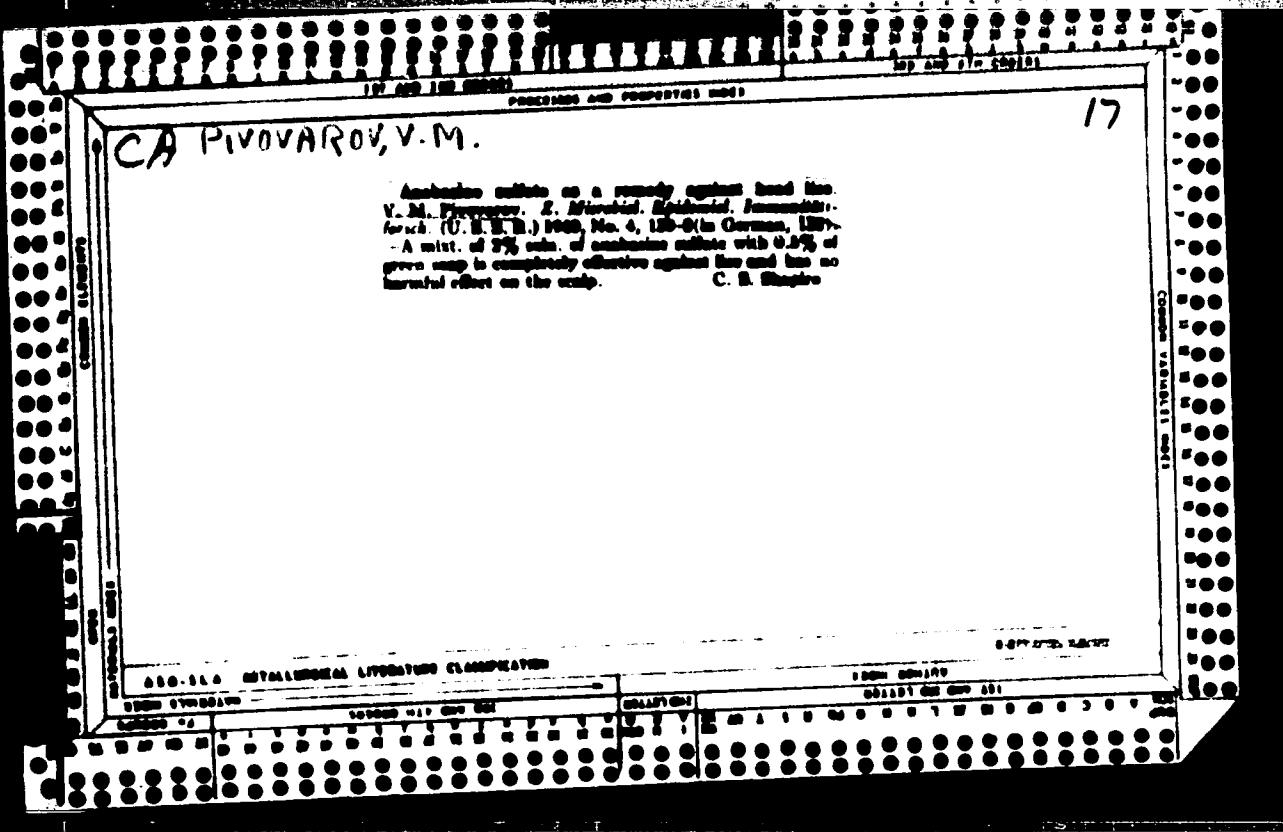
resolution are illustrated on the 1004-1030 cm^{-1} doublet of toluene
and the 999-1017 cm^{-1} doublet of iodoxybenzene (Fig 2). The first
doublet Fig 2a, is completely resolved, the second (Fig 2b), is resolved
to the extent of about 80%. There are 2 figures and 4 references,
1 of which is Soviet, 2 English and 1 international.

REMITTER: January 24, 1959

LAND 272







REVA, P., starshiy inzh.; PIVOVAROV, V., inzh.-mekhanik

Mechanized pigsty on the "Maiak" collective farm. Sil' bud. 12
no. 3:7-8 Mr '62. (MI: A 1:8)

1. Cherkasskoye rayonnoye otdeleniye "Sil'gosptekhniki".
(Cherkassy Province--Swine houses and equipment)

39600
S/051/62/013/001/004/019
E039/E420

24.3100

AUTHORS: Kir'yanova, L.A., Pivovarov, V.M., Yakovlev, S.A.

TITLE: The excitation of combination scattering in the orange and red regions of the spectrum

PERIODICAL: Optika i spektroskopiya, v.13, no.1, 1962, 79-82

TEXT: Description is given of a powerful low voltage helium lamp, intended for the excitation of combination scattering spectra in the orange and red regions of the spectrum. The discharge tube is 40 mm in diameter and constructed from 3C-5K glass, working length 120 mm, with oxide coated electrodes and designed for a working current of 8 to 10 A. Near each electrode is an auxiliary trigger electrode. The intensity of the He 5875 Å line is shown to decrease steadily as the helium pressure is increased, the best conditions being obtained at about 2 mm, with a working voltage of 150 to 170 V. The intensities of the 5875, 6678, 7065 and 7281 Å lines all increase linearly with current over the range 2 to 9 A. A rough spectrum of the spectral energy distribution is given: taking the 5875 Å lines as 100, the 6678, 7065 and 7281 Å lines are 14.1, 8.1 and 2.6 respectively.

Card 1/2

The excitation of combination scattering in the orange and red regions of the spectrum
APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0013411
S/051/62/013/001/004/019 E039/E420

Use of electric and photographic recording the spectrum of o-nitroaniline in acetone ($C = 1.3$ mole/litre) is obtained and compared with the data of J. Behringer for o-nitroaniline in CCl_4 solution. No agreement is obtained over the range observed, i.e. ~ 350 to 1600 cm^{-1} . The spectrum of CCl_4 excited by the He lines 5875, 6678 and 7065 Å is also examined (only anti-Stokes region). There are 5 figures and 2 tables.

SUBMITTED: May 19, 1961

Card 2/2

PIV (Mr. V., T. C., & Mrs. P. G. - I believe - are the initials of the
pol. [unclear] position [unclear] to [unclear] [unclear] [unclear] [unclear]
[unclear], [unclear] [unclear] [unclear] [unclear] [unclear] [unclear] [unclear]
(S.I. V value). 1 copy of list of other [unclear] [unclear]
[unclear] (S.I. V value), 1 copy, 10/10/86, 10/10/86

PIVOVAROV, V.M.

Allowance for the effect of the internal field in the determination
of the intensity of the Raman effect. Opt. i spektr. 9 no.2:266-
269 Ag '60. (NIRA 13:8)
(Raman effect)

PHASE I BOOK EXPLOITATION SOV/4186

Akademiya nauk SSSR

Stroyeniye veshchestva i spektroskopiya (Structure of Matter and Spectroscopy) Moscow, Izd-vo AN SSSR, 1960. 113 p. Errata slip inserted. 2,300 copies printed.

Ed.: K. V. Astakhov, Professor; Tech. Ed.: T. P. Polenova.

PURPOSE: This collection of articles is intended for physicists and chemists interested in spectroscopic methods of research on the structure of molecules and related problems.

COVERAGE: The articles contained in this collection were taken from the editorial files of the Zhurnal fizicheskoy khimii (Journal of Physical Chemistry) and are concerned with spectroscopic methods in research on the structure of molecules, the hydrogen bond, isotopic effects, problems in magnetochemistry, the structure of aqueous solutions of electrolytes, and the chemistry of complex compounds. References accompany individual articles.

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Structure of Matter and Spectroscopy

SOV/4186

TABLE OF CONTENTS:

Roginskiy, S. Z. [Institut fizicheskoy khimii (Institute of Physical Chemistry)]. Possibility of the Direct Investigation of the Structure and Form of Molecules in Emission Projectors 3

Zhurkov, S. N., and B. Ya. Levin [Leningradskiy fiziko-tehnicheskiy institut (Leningrad Physicotechnical Institute)]. Study of Plastification Mechanism by Infrared Spectroscopy 14

Pivovarov, V. M., and N. D. Ordyntseva. Features of Spectroscopic Manifestation of Hydrogen Bond in n-Nitroaniline Molecules

The authors thank Ya. S. Bobovich and V. S. Neporenko for their interest. 20

Sheynker, Yu. N., and Ye. M. Peresleni [Khimiko-farmatsevticheskiy institut im. S. Ordzhonikidze (Chemical Pharmaceutical Institute imeni S. Ordzhonikidze)]. Tautomerism of Certain Derivative Heterocyclic Compounds. XI. The Deutero-acylated Heterocyclic Amines

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Structure of Matter and Spectroscopy

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Shigorin, D. N., M. M. Shemyakin, M. N. Kolosov, and T. S. Ryabchikova [Fiziko-khimicheskii institut im. L. Ya. Karpova (Physicochemical Institute imeni L. Ya. Karpova) and Institut biologicheskoy i meditsinskoy khimii AMN SSSR [Institute of Biological and Medical Chemistry of the Academy of Medical Sciences USSR)]. Intermolecular Interaction and Oscillation Spectra of Acetylene Compounds

36

Izmail'skiy, V. A., and V. Ye. Limanov [Moskovskiy pedagogicheskiy institut im. V. P. Potemkina-Moscow Pedagogical Institute im. V. P. Potemkin] Absorption Spectra of Derivatives of N-[β - (4-Nitrophenyl)-Ethyl]- Aniline

41

Izmail'skiy, V. A., and V. Ye. Limanov [Moskovskiy pedagogicheskiy institut im. V. P. Potemkina (Moscow Pedagogical Institute imeni V. P. Potemkin)]. Absorption Spectra of Derivatives of N-[β -(2,4-Dinitrophenyl)-Ethyl]-Aniline

53

Rabinovich, I. B. [Gor'kovskiy gosudarstvennyy universitet im. N. I. Lobachevskiy (Gor'kiy State University imeni N. I. Lobachevskiy)]. Effect of Displacement of Hydrogen by Deuterium on the Molal Volume of Liquids

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Structure of Matter and Spectroscopy

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The author thanks the following for having participated in determining the density of deuterocompounds: V. G. Golov, P. N. Nikolayev, V. I. Kucheryavyy, Ye. Z. Zhuravlev, V. I. Murzin, and L. S. Zhilkin. He thanks A. I. Brodskiy for his discussion of the results.

Ar'yev, A. M., and M. B. Al'tshuler [Novocherkasskiy politehnicheskiy institut (Novocherkassk Polytechnic Institute)]. Problem of Change in the Structure of Polyethylene at Plane-Radial Extension

69

Rabinovich, I. B., V. M. Salov, Ye. I. Novikova, S. D. Ravikovich, and V. M. Nikolayev [Gor'kiy State University imeni N. L. Lobachevskiy]. Isotopic Effect on the Viscosity of Deuteroalcohols

73

Vasiliu, M. I., V. N. Yeremenko, and V. V. Fesenko. Investigation of Surface Tension of Liquid Metal Solutions. I. Surface Tension of a Lead-Silver System

78

Veynberg, T. I. Coordination Equilibria of Nickel Ions in $K_2O - PbO - SiO_2$ System Glasses

84

Card 4/6

Structure of Matter and Spectroscopy

SOV/4186

Kolesova, V. A. [Institut khimii silikatov (Institute of the Chemistry of Silicates)]. Structure of Spodumene Glass
V. I. Aver'yanov is thanked for having plotted the curves for α - and β - spodumene and for the crystallization product of spodumene glass.

Rebane, T. K. [Physicochemical Institute imeni L. Ya. Karpov]. Calculation of Excess π -Electron Diamagnetic Susceptibility of Certain Molecules Containing the Six-Member Carbon Ring With the Aid of the Free Electrons Model
The author thanks I. N. Kalachevaya and B. Ye. Samosudov for the numerical calculations, and Ye. N. Gur'yanova and M. N. Adamov for their suggestions. 9c

Samoylov, O. Ya., and M. N. Buslayeva [Institut obshchey i neorganicheskoy khimii im. N. S. Kurnakova (Institute of General and Inorganic Chemistry imeni N. S. Kurnakov)]. Temperature Dependence of Coordination Numbers of Alkali Metal Cations in Aqueous Solutions 10c

Carl E. r

Structure of Matter and Spectroscopy

SOV/4186

Yesin, O. A. [Ural'skiy politekhnicheskiy institut im.
S. M. Kirova (Ural Polytechnic Institute imeni
S. M. Kirov, Sverdlovsk)]. Form of Surface Tension
Isotherms

AVAILABLE: Library of Congress

Card 1, 6

JADM:ec
10-20-60

KUVVARV, V.R.

Eliminating the need to identify the target company
in connection with their new firm. See, etc., also P:1013-1014 16².
• DRAFT, 20th weekly report, 1948, Bureau.

PIVOVAROV, V.P.

New modified method of roentgenological localization of foreign bodies in the eye and in the orbit with Batin's prosthesis-indicator.
Vest. oft., Moskva 32 no. 1:28-34 Jan-Feb 1953. (CLML 24:1)

PIVOVARCHIK, V.P.

Restoration of obstructed lacrimal ducts. Vest. oft., Moskva 32 no.2:34-36
Mar-Apr 1953.
(CLML 24:4)

3-5179-66 EWP(e)/EWP(v)/EWP(k)/EWP(h)/EWP(l) IJP(e) 00/DC

ACCESSION NR: AT5021844

UR/0000/65/000/000/0160/0167

AUTHOR: Korotkov, S. V.; Pivovarov, V. T.; Tarasenko, Ye. V.; Shumskaya, M. K. 48
B+/

TITLE: A study of mixed systems of automatic control by means of digital integrators

SOURCE: AN SSSR. Institut elektromekhaniki. Avtomatizirovanny elektroprivod; sledyashchiye sistemy, upravleniye i preobrazovatel'nyye ustroystva (Automated electric drive; tracking systems, control and converter devices). Moscow, Izd-vo Nauka, 1965, 160-167

TOPIC TAGS: Automatic control system, digital integrator, digital system, automatic control design, servosystem

ABSTRACT: Mixed slave systems are now used for the realization of high Q-factor in automatic control systems. The present authors investigate such a mixed system consisting of a power and a correcting section. The power section controls the rate of change of coordinates whereas the correcting section consists of a coordinate digital slave system. Detailed theoretical and experimental investigations show that 1) the digital integrator can generate the $\sin \omega t$ and $\cos \omega t$ functions with widely varying amplitudes and frequencies; 2) mixed systems with double motors have lower demands imposed on their components; 3) under certain circumstances the two parts of the combined systems may be viewed as independent and the total error of the power section may be used as the equivalent control

Card 1/2

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ACC NR: AF5025451

reduce the number of necessary machines and personnel, will extend the life of
machines by providing properly constructed interchangeable parts, and will lower
the cost of jobs to which it is applied. Orig. art. has: 1 photograph.

SUB CODE: IR/

SUM DATE: none

PC

Card 2/2

44084

S/573/62/000/007/011/015
D201/D308

AUTHORS: Myashnikov, V.A., Ivovarov, V.T. and Votanova, G.V.

TITLE: A semiconductor integrator with parallel carry of integrands and serial carry of excess units

SOURCE: Akademiya nauk SSSR. Institut elektromekhaniki. Sbornik rabot po voprosam elektromekhaniki. no. 7, 1962. Avtomatizatsiya, telemekhanizatsiya i priborostroyeniye, 343-349

TEXT: The authors discuss the principles of operation and describe the circuit diagram of a transistorized integrator with parallel carry, which could be used in digital differential analyzers for the control of azimuthal astronomical instruments. The integrator consists of the R_y register of the integrand and a store R . The register R_y stores the magnitudes of the variable y_i , obtained by algebraic summation of increments Δy of $y = f(x)$. Since the speed of the integrator operation depends on that of registers R_y and R , the serial carry of excess units in R_y and R is used.

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STETYUKHA, Ye.I.; PIVOVAROV, V.T.; LYSJKO, N.A.

Relationship between the density, specific weight, and porosity
of rocks. Izv. vys. uchet. zav.; neft' i gaz 4 no.11:23-27 '61.
1. Groznenskiy neftyanoy inst. (MIRA 17:2)

STETYUKHA, V.I.; PIVOVAROV, V.T.

Basic characteristics of the changes in the physical properties
of rocks of argillaceous facies in northeastern Ciscaucasia as
related to the depth of occurrence. Aserb. neft. khos. 41 no.12:
8-10 D '62.
(MIRA 16:7)

(Caucasus, Northern—Clay)

MYASNIKOV, V.A.; PIVOVAROV, V.T.; POTAPOVA, G.V.

An integrating device using transistors with parallel transfer
of the integrand function and ripple-through carry of overflow
units. Sbor.rab.po vop.elektromekh. no.7:343-349 '62.

(Automatic control) (MIRA 16:1)
(Astronomical instruments)

ACCESSION NR: AT4015858

S/2573/63/000/009/0087/0101

AUTHOR: Korotkov, S. V.; Myasnikov, V. A.; Pivovarov, V. T.

TITLE: Investigation of the algorithm of a special-purpose digital computer for the transformation of equatorial coordinates into azimuthal coordinates

SOURCE: AN SSSR. Institut elektromekhaniki. Sbornik rabot po voprosam elektromekhaniki, no. 9, 1963. Avtomatizatsiya, telemekhanizatsiya i priborostroyeniye. (Automation, telemechanization and instrument manufacture), 87-101

TOPIC TAGS: azimuth equator, azimuth coordinate, equatorial coordinate, digital computer, computer, algorithm, zenith, digital system, tracking system, telescope, ternary code, accelerated clock

ABSTRACT: The logical design of a special-purpose digital computer which transforms the equatorial coordinates (declination δ and ascension α) into azimuthal coordinates (azimuth A and zenith distance z), using digital differential analyzer principles, is worked out in detail. The computer is to be used in an automatic digital tracking system for a telescope (or any other azimuthal instrument). It uses 10 digital integrators of 20-bit capacity, with a resultant error in A and z of the order of 10^{-6} . The transformation equations which form

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the basis for the design are

$$z = \arccos(a_4 + a_5 \cos t) \quad (1)$$

$$A = \arcsin \frac{a_1 \sin t}{(\sin z)} \quad (2)$$

where $a_4 = \sin \gamma \sin \beta$, γ = latitude of the point, β = declination, $a_5 = \cos \gamma \sin \beta$, $a_1 = \cos \beta$, t = time angle. The computer uses the differential form of Equations (1) and (2). The block diagram of the system is shown in Figure 1 of the Enclosure. The sine and cosine functions of the time angle are realized by integrators 1 and 2 which have differential (incremental) outputs. This scheme was described in detail by A. A. Voronov et al. in "Tsifrovye analogi dlya sistem avtomaticheskogo reguliravaniya," Izd. AN SSSR, Moscow, 1961. The differential form of Equation (1) is realized by the null-element 4 whose output is

$$a_5 \sin t - \sin z dz = 0 \quad (3)$$

and whose output is fed into a $(\sin z)$ -generator (5 and 6), similar to the time sine and cosine generator. The incremental output $\pm dz$ is used as the zenith tracking control signal.

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ACCESSION NR: AT4015858

Ternary code is used for incremental values, which requires that different polarities be processed through different channels. With this method of coding, the null-element becomes a bidirectional counter which controls the gates B through which the timing pulses Δt pass until the contents of the counter become zero. The initial values of $\sin z$ and $\cos z$ must be, of course, stored in registers of integrators 5 and 6. Equation (2) is also realized

$$d(\sin A) \sin z + d(\sin z) \sin A = a_1 d(\sin t) \quad (4)$$

by a null-element (12) and integrators 9 and 10, with integrators 8 and 11 supplying necessary additional transformations. Before the system can be used for tracking, initial values of the coordinates (a_1 and a_5) must be supplied to the scale integrators 3 and 7. The time reference point is $t = 180^\circ$, which corresponds to $S/2$ (S is a stellar day, 23 hours, 56 minutes, 4.08 sec.). The calculation of initial coordinates continues until $S/2 - S_1$, at which point the output coordinates correspond to the true coordinates of the star. This is done by reconnecting the elements of the system so that integrators 9 and 10 calculate $a_1 = \cos\varphi$ and integrators 5, 6, 8, 9, 10, and 11 give $a_5 = \cos\varphi \cos\delta + d \cos\varphi \cos\delta$, using the processing equation $da_1 = d \cos\varphi \cos\delta + d \cos\varphi \cos\delta$. The initial values are $\varphi = \delta = 0$, and the processing stops when the preselected values of φ_0 and δ_0 are reached. An accelerated clock, which requires 4 minutes to cover the entire azimuth angle of 360° , rate of 25 kc is used for

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ACCESSION NR: AT4015858

processing of initial conditions. The faster clock rate assures that initial conditions are processed before the time S_1 . At the moment S_1 , a synchronizing network connects the system to the real-time clock, and the tracking begins. The incremental values ΔA and Δz are stored in counters 13 and 14, which produce the computed coordinate values x_1 and A_1 . These are compared with actual values of A and z as obtained by monitoring the position of the axis of the instrument. Orig. art. has: 9 formulas, 6 figures, and 3 tables.

ASSOCIATION: Institut elektromekhaniki AN SSSR (Institute of Electromechanics AN SSSR)

SUBMITTED: 00

DATE ACQ: 20 Dec 63

ENCL: 01

SUB CODE: AA, DP

NO REF Sov: 001

OTHER: 001

Card

4/0

SITNIKOV, I.S.; KOROTKOV, S.V.; MYASNIKOV, V.A.; PIVOVAROV, V.T.

Automatic meter of the volume of round logs for long conveyors.
Biul. tekhn.-ekon. inform. Gos. nauch.-issl. inst. nauch. i
tekhn. inform. 17 no.2:53-55 '64. (MIRA 17;6)

STETYUKHA, Ye.I.; PIVOVAROV, V.T.

Possibility of increasing the diameters of circulating
channels in grief stems. Izv.vys.ucheb.zav.; neft' i gaz
3 no.2:47-51 '60. (MIRA 13:6)

1. Groznenskiy neftyanoy institut.
(Oil well drilling--Equipment and supplies)

L-4114-65 ENT(d)/EXP(1) Po-4/Pg-4/PG-4/Pk-4/pl-4 IJP(c) GS/SC
ACCESSION NR: A T5003621 S/0000/64/000/000/0188/0201

AUTHOR: Zhandarov, M. Ye.; Korotkov, S. V.; Myasnikov, V. A.;
Pivovarov, V. T.; Stabnikova, G. V.; Tarasenko, Ye. V.

30.7
P+1
TITLE: Experimental outfit for studying combined digital servos with a
harmonic input signal

SOURCE: AN SSSR. Institut elektromekhaniki. Avtomatizirovannyj elektroprivod
(Automated electric drive). Leningrad, Izd-vo Nauka, 1964, 188-201

TOPIC TAGS: servo, servo system, digital servo system

ABSTRACT: The outfit consists of a special computer and an executive system. The computer comprises two semiconductor integrators with a parallel carry of integrand and a high-speed carry of overflow units. Each integrator (described elsewhere) includes a reversible counter and a storage unit. The integrators are connected for yielding the increments $\Delta \sin \omega t$ and $\Delta \cos \omega t$, i.e., the increments

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L 34114-68

ACCESSION NR: A T5003621

of coordinates of a point that travels along a circle. The sine function is generated with an accuracy up to the 20th binary digit. Also, the means for computing a time-derivative of angle are provided. A principal circuit diagram of the outfit is explained in some detail. The combined digital servo system consists of a coordinate servo and a rate (or speed) servo. Information about coordinate $\sin \omega t$ and its rate of change $\cos \omega t$ comes from the computer and is fed into the corresponding servos. The coordinate information appears periodically; the rate, continuously. The outfit permits investigating two-motor "angle-angle" servos as well as two- and single-motor "angle-rate" servos. Orig. art. has: 8 figures, 12 formulas, and 1 table.

ASSOCIATION: none

SUBMITTED: 08Jul64

ENCL: 00

SUB CODE: DP, IE

NO REF SOV: 009

OTHER: 000

Cord 2/2

L 3/152-65 ESD-2/EWT(d)/EWP(1) Pg-4/pk-4/Po-4/Pq-4 IJP(c) 00/BB/GS
ACCESSION NR: AT5003624 S/0000/64/000/000/0239/0242

AUTHOR: Maksimov, V. P.; Myasnikov, V. A.; Pivovarov, V. T.

36

C+1

TITLE: Binary pulse counter with a short transient time

16C

SOURCE: AN SSSR. Institut elektromekhaniki. Avtomatizirovannyj elektroprivod
(Automated electric drive). Leningrad, Izd-vo Nauka, 1964, 239-242

TOPIC TAGS: binary counter, pulse counter

ABSTRACT: A 21-digit binary pulse counter intended for operation at 1.296 Mc
(angle-to-number converter) and required to receive pulses, deliver reading, and
clearing in $0.77\frac{1}{4}$ sec is briefly described. The standing-on-nines carry is used
for the lower eleven digits while a speedier carry — logical carry — is employed
for the upper ten digits. In the latter method, the input pulse is applied to the
trigger which receives the overflow unit. This is provided by a 10-input voltage
gate. Thus, the transient time of the counter is determined by the gate time and

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L 34152-65

ACCESSION NR: AT5003624

by the trigger-flip time because the pulse comes to all digits simultaneously.
This transient time is only 0.3-0.4 msec. An input resolution time of 0.5 msec is
claimed for the entire counter. Orig. art. has: 2 figures and 1 formula.

ASSOCIATION: none

SUBMITTED: 08Jul64

ENCL: 00

SUB CODE: DP, EC

NO REF Sov: 002

OTHER: 000

Card 2/2

YEZHKOV, V.V., inzh.; Prinimali uchastiye: PSOV YANOV, A.A.; RIVNEN' V, V.V.

Effect of additional moments on the dynamic stability of an electric power transmission system containing turbogenerators. Elektricheskaya
promst.: 35-41 N '71.
(Mirnaya)

1. Moskovskiy energeticheskiy institut (for Yezhkov).
(Electric power distribution) (Turbogenerators)

EGIDZHANOV, M.; PIVOVAROV, Ya.

Firms are introducing electronic calculating machines. etc. etc.
8 no.6:81-87 Je 153. (MIR. 16.9)
(Leningrad--Instrument Industry--Management)
(Electronic data processing.)

PIVOVAROV, Ya., inzh.; MIKHAYLOV, A.

Important means of reducing and cutting the expenses of administrative personnel. Sots.trud 4 no.2:117-122 F '59.
(MIREA 12:4)

1. Nachal'nik otdela truda i sarabotnoy plat'z mashinostroitel'nogo zavoda (for Mikhaylov).
(Machinery industry) (Labor productivity)

PIVOVARI V. Yakov Ionovich; KRAINSKIY, A.I., red.; FIDLER, P.I.,
red.izd-vs; VIKTS, V.L., tekhn. red.

[Operational production planning using the EV-80-3
electronic computer] Operativnoe planirovaniye proizvodstva
s ispol'zovaniem elektronnogo vychislitelia EV-80-3; ste-
nogramma doklada na Vsesoziiskom soveshchaniye po mekhaniz-
atsii i avtomatizatsii inzhenernogo i upravlencheskogo tru-
da v promyshlennosti i stritel'stve. Leningrad, Leningr.
dom nauchno-tekhn. propagandy. 1963. 3 p. (MIRA 16:1)

(Electronic data processing)

Prakticheskaya

ZHELTIKOV, P. Ye., inzh. (Rostov-na-Donu); PIVOVAROV, Ya. N., [REDACTED] (Rostov-na-
Donu)

Loading and transporting operations on the site of the construction
of 1020-mm. gas pipelines. Stroi.truboprov. 4 no.12:15-17 D
'59.

(Gas, Natural--Pipelines)

(MIRA 13:5)

PIVOVAROV, Yu.A.

Investigating the all-metal picking mechanism of the AT-1-102
loom. Izv.vys.ucheb.zav.; tekhn.tekst.prom. no.2:143-148 '63.

(MIRA 16:6)

1. Leningradskiy tekstil'nyy institut imeni S.M.Kirova.
(Looms)

PIVOVAROV, Yu.A.; SHAMSHURIN, Yu.A.

Instantaneous value of torque in At-100-2 looms. Izv. vys. tscheb.
zav.; tekhn. teks. prom. no. 2:124-127 '61. (MIRA 14.5)

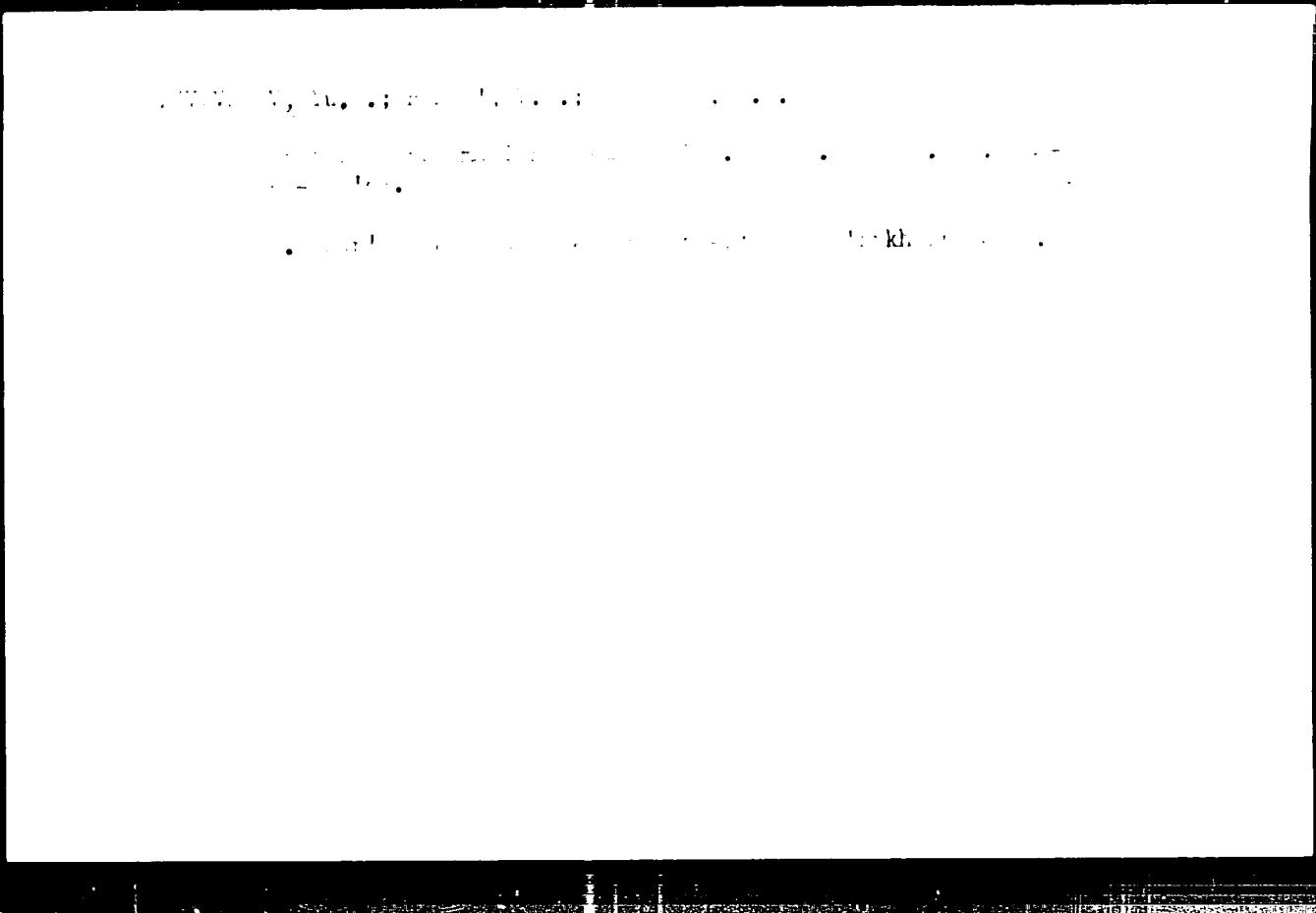
1. Leningradskiy tekstil'nyy institut imeni S.M. Kirova.
(Looms) (Dynamometer)

PIVOVAROV, Yu.A.; SHAMSHURIN, Yu.A.

Two methods of determining power consumption of looms. Izv.vys.
ucheb.zav.; tekhn.tekst.prom. no.6:121-125 '62. (MIRA 16:2)

1. Leningradskiy tekstil'nyy institut imeni Kirova.
(Looms—Testing)

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DIDENKO, K.I.; PIVOVAROV, Yu.I.; SUSHIN, V.A.

Noncontact electronic potentiometer. Avtom. i prib. no.1:53-56
Ja-Mr '63. (MIRA 16:3)

1. Khar'kovskiy zavod kontrol'no-izmeritel'nykh priborov.
(Potentiometer)

PIVOVAROV, Yu.L.

Characteristics of the territorial structure of the national economy
of the Czechoslovak Socialist Republic. Izv. AN SSSR. Ser. geog.
no.5:16-26 S-0 '65. (MIRA 18:10)

1. Institut geografii AN SSSR.

PIVOVAROV, Yu.L.

Changes in the geography of the population in the Czechoslovak Socialist Republic; based on the materials of the 1961 census.
Izv. AN SSSR Ser. geog. no.6:35-44 N-D '64 (MIRA 18:1)

1. Institut geografii AN SSSR.

PIVOVÁŘOV, Yu.L.

Geographic atlas of the Czechoslovak Socialist Republic for use in
schools. Geod. i kart. n. 2:59. (č. r. c). (MIA 16:3)
(Czechoslovakia - Maps)